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Sporting activities for individuals who experienced trauma during their youth: A meta-study

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Abstract

The purpose of this study was to critically examine the qualitative research on childhood trauma survivors' experiences of sporting activities. A comprehensive search of health and social science databases, manual journal searches and contact with experts yielded 7,395 records. Full text screening resulted in a final sample of 16 studies. Meta-study methodology was used as a diagnostic tool to rigorously analyse the theory, methods and findings of the included studies. Studies with explicit connections between philosophy, theory and methodology resulted in a more robust and critical contribution to the literature. There was much diversity in terms of methodological approaches and qualitative methods which was important in revealing the multifaced nature of experiences in sporting activities following trauma. Findings from the reviewed studies indicated that a sense of belonging; psychological escape; embodied experience; and the physical and social environmental are important considerations in the study of sporting activities with trauma survivors.

Key words: youth, trauma, physical activity, qualitative research, meta-study

Introduction

Experiences of childhood trauma or traumatizing events, and the resulting outcomes, have become a public health issue. In their seminal work on adverse childhood experiences, Felitti et al. (1998) surveyed 9,508 individuals in the United States (U.S.) regarding histories of abuse, neglect, and household dysfunction during childhood. Over half of respondents reported at least one adverse childhood experience, with roughly 25 percent of individuals reporting two or more adverse experiences during childhood. This is consistent with data reported by others, as trauma prevalence rates for children and adolescents are approximately 36 percent (Fletcher, 2003). In considering specific trauma exposures, global estimates suggest that 150 million girls and 73 million boys are victims of sexual assault worldwide (United Nations, 2006), with U.S. reports showing sexual assault prevalence rates of 25 percent for females and 16 percent for males (U.S. Centre for Disease Control [CDC], 2016). Moreover, the CDC (2016) reports physical abuse rates at 28.3 percent, household substance abuse rates at 26.9 percent, household mental illness rates at 19.4 percent, and emotional abuse and neglect at 10.6 and 14.8 percent respectively. Research has documented that the effects of these various incidents have implications for long-term economic, social, psychological, and physical health-related issues. In considering economic impact, Fang, Brown, Florence, and Mercy (2012) reported the combined medical care, productivity losses, child welfare, and education costs associated with childhood maltreatment range from \$124 to \$585 billion. Similarly, Rovi, Chen, and Johnson (2004) reported significantly higher mortality rates, comorbidities, and costs, for children diagnosed as abused or neglected in the hospital setting.

Aside from economic costs, research has consistently shown both short-term and long-term psychological, social, behavioural, and physical health detriments associated with traumatic experiences during childhood and adolescence. For example, Felitti et al. (1998)

suggested a graded relationship in which those with four or more adverse childhood experiences were at a significantly higher risk for social, psychological, and behavioural health disorders. In a follow-up study, Anda et al. (2006) reported that individuals with at least four adverse childhood experiences were more likely to be depressed, have difficulty controlling their anger, to use illicit drugs, to engage in domestic violence, and to suffer from alcoholism, than those without a past trauma history. Similar findings have been reported for physical health outcomes (Williams, Thompson, Anda, Dietz, & Felitti, 2002; Irish, Kobayashi, & Delahanty, 2010), psychological health outcomes (Anda, Brown, Felitti, Bremner, Dube, & Giles, 2007; Dube et al., 2001; Green, McLaughlin, Berglund, Grubder, & Sampson, 2010; Koenen, Moffitt, Poulton, Martin, & Caspi, 2007), and behavioural health outcomes (Anda et al., 2002; Chapman et al., 2011).

Despite the widespread impacts of traumatic experiences during childhood, there remain issues around diagnosis and treatment for children experiencing traumatic events. To date, trauma diagnoses are focused on a singular event that causes a trauma response. Yet, this fails to capture that “child victims of physical, sexual, and emotional abuse, or indirect witnesses of domestic violence often experience multiple forms of abuse on frequent occasions,” and that, often “children reporting multiple abuses do not meet the criteria for PTSD” (Denton, Frogley, Jackson, John, & Querstret, 2017, p. 261). While D’Andrea and colleagues (2012) have advanced efforts to distinguish ongoing developmental trauma from post-traumatic stress disorder (PTSD), to date no formal diagnostic criteria exists for complex or developmental trauma, and there remains a lack of measurement tools that target symptoms associated with ongoing trauma (Denton et al., 2017). This is problematic given that the sequelae of trauma symptomology can present similar to a variety of diagnoses such as ADHD, depression, bipolar disorder, as well as anxiety and behavioural related disorders (D’Andrea et al., 2012).

In considering evidence-based treatment options, positive short-term outcomes have been reported for children and adolescents diagnosed with PTSD. In a comprehensive systematic review, Gillies and colleagues (2016) reviewed 51 studies examining different psychological treatments for those diagnosed with PTSD. Overall, there was a positive effect for the combined interventions on PTSD diagnosis and PTSD symptoms, with sub-group analyses showing more consistent results for cognitive-behavioural therapy and family therapy. Others have reported intervention effects for children exposed to trauma, with positive findings for eye movement desensitisation and reprocessing (EMDR; Soberman, Greenwald, & Rule, 2002) as well as interventions targeting attachment disruptions, self-regulation, and reactivity (Becker-Weidman, 2006; Copping, Warling, Benner, & Woodside, 2001; Dozier et al., 2006). Yet, as argued by D'Andrea and colleagues (2012; 2013), the sequelae of trauma symptomology, concomitant with the pervasiveness of symptoms often observable in children exposed to multiple traumas, requires creativity and innovation as it relates to holistic treatment and rehabilitation of young people. To this end, more attention has been paid to sporting activities for child survivors of trauma, such as the use of organized sports, games, play and movement as an adjunct to traditional psychological or pharmacological treatment.

Broadly, two different conceptualizations have been made for the use of sporting activities in the treatment of trauma. On the one hand, scholars have pointed to the neurobiological responses involved in trauma, and how physical movement can help target these bodily systems (Schnurr & Green, 2004). For example, researchers have suggested that mind-body practices (e.g., yoga, dance) may be effective in helping to regulate the autonomic nervous system (Streeter, Gerbarg, Saper, Ciraulo, & Brown, 2012), thereby helping to facilitate a more adaptive response to chronic stress associated with trauma. While the

evidence-base is still growing, preliminary findings have generally supported this hypothesis (Levine & Land, 2016; Mitchell et al., 2014; Streeter, et al., 2012; van der Kolk et al., 2014).

On the other hand, research in the areas of sport psychology and positive youth development have proposed that engagement in sport can help youth by facilitating positive relationships with adults and peers, competence through skill building and goal directed pursuits, and interpersonal skills through cooperative play. While experimental research within these fields remains inconclusive (e.g., D'Andrea et al., 2012; Lawrence, De Silva, & Henley, 2010; Richards, Foster, Townsend, & Bauman, 2014), there remains epistemological, theoretical, and methodological discord amongst scholars in these fields as it relates to what qualifies as best evidence and what types of outcomes sport is best able to effect (e.g., Massey & Whitley, 2018). For example, while some maintain a need for rigorous experimental evidence to support the use of sport when working with traumatized populations (e.g., Coatler, 2013), others maintain these methods are inappropriate as traditional methods of research and evaluation can reinforce systems of hegemony and oppression (Lindsey & Grattan, 2012; Darnell & Hayhurst, 2012). Moreover, despite theoretical differences in how sporting activities might be beneficial for survivors of trauma (i.e., biological versus ecological understandings), the act of participating in sporting activities might be perceived differently based on the environment and context of the activity (i.e., intrapersonal processes such as yoga, interpersonal processes such as sport). As such, the purpose of this study was to synthesise the qualitative literature that examines the intersection of sporting activities and childhood trauma. In doing so, we sought to examine (a) the philosophical, theoretical, historical, and methodological trends within the extant literature, (b) how the various approaches to research have impacted our knowledge of first-hand accounts and experiences of trauma survivors who have engaged in sporting activities, and (c) how this knowledge can help inform future research.

Materials and Methods

Meta-study

A meta-synthesis is a methodological approach involving the systematic review, appraisal and synthesis of qualitative research evidence to reveal new knowledge concerning a specific research topic (Williams & Shaw, 2016). The aim of a meta-synthesis is to translate the findings from qualitative research into themes, concepts, categories, or theories that *go beyond* the findings in primary studies to reach new or enhanced understandings regarding the phenomenon under review (Paterson, 2012). In comparison to other types of meta-synthesis, a meta-study is a distinct approach to the critical interpretation of qualitative research by addressing theoretical, methodological and analytical components of studies (Williams & Shaw, 2016). While many methods of meta-synthesis focus on synthesising findings (e.g., Levin & Land, 2016), we drew upon meta-study as a *diagnostic* tool to reflect upon the *process of research* and “identify and explore any areas of transition or failure to progress in this subject matter” (Frost et al., 2016, p.308). To investigate both the results *and* processes of previous research, meta-study methodology involves the systematic analysis of theory, methods and findings (Paterson et al., 2001). The final stage entails a synthesis of these analyses to examine similarities and differences between primary studies, extrapolate new theoretical, methodological and practical implications, and identify potential directions for future research (Clarke et al., 2015; Paterson et al., 2001).

Inclusion and exclusion criteria

Given the dearth of studies at the intersection of trauma and sporting activities, we utilised broad inclusion criteria. As it relates to trauma, we did not limit studies to those with a formal diagnosis of PTSD, but rather, utilised a definition of complex and developmental trauma as outlined by Denton et al. (2017). Specifically, our inclusion criteria were set-up to capture both those who had experienced trauma (e.g., physical abuse, sexual abuse), and

those who were in potentially traumatising situations (e.g., exposure to inter-personal violence, disruption in caregiving). We also utilised a broad definition of sporting activities to include both traditional sporting practices and various types of structured movement (e.g., martial arts, yoga). Further, studies could have been naturalistic or intervention based. Finally, we defined childhood as under the age of 25 years old. Given these definitions, our formal inclusion criteria included: (a) original qualitative articles published in peer-reviewed journals that reported original empirical research; (b) study participants had experienced trauma or been in traumatising situations during their childhood; (c) the study examined the impacts of sport or structured movement participation or intervention; and (d) articles presented data related to mental health, well-being, or psychological adjustment. Studies were excluded if: (a) they were not written in English, (b) the study participants were primarily coaches or others delivering the intervention, (c) the study was focused solely on physical activity as an intervention, and (d) the focus was on abuse as a result of sport participation.

Identifying relevant articles

A systematic search of relevant databases was undertaken to identify published research articles. Nine databases were searched including CINAHL, MEDLINE, PsychINFO, SPORTDiscuss, SocINDEX, ERIC, PsychEXTRA, Web of Science, and Academic Search Complete. In line with the purpose of our review, we used multiple search terms for maximum coverage of the literature: 1) *youth*, 2) *trauma* (we were interested in studies that examined youth who had experienced trauma [e.g., gender-based violence, physical or sexual abuse, etc.] OR those in traumatising situations [e.g., refugees, war torn, prison, natural disasters, terrorist attacks], 3) *type of sport or activity*, 4) *mental health and well-being* (we were interested in studies that examined mental health, well-being or psychological adjustment) and 5) *qualitative research* (qualitative studies or mixed methods studies with a rigorous qualitative component) (see Table S1 for full breakdown of terms used). This search

resulted in 7395 articles that were screened for inclusion. A manual search was also conducted from 2000-2017 in 14 journals that covered sport and developmental psychology topics. Following the screening of articles for their relevance based on the title and abstract alone, the full text of 63 articles were examined for inclusion, with 15 articles meeting the full inclusion criteria. Finally, the references list from these 15 articles were reviewed, resulting in one additional study meeting the full inclusion criteria. The final 16 studies include a wide variety of sporting activities across multiple contexts among various youth populations.

Data analysis and synthesis

Meta-study methodology involves the systematic analysis of three main components: meta-theory, meta-method and meta-data analysis. *Meta-theory* involved the critical exploration of theoretical frameworks and paradigmatic assumptions that have arisen in a body of literature. As Paterson et al. (2001) explain, the initial stages of meta-theory involve a thorough read of the primary research article to “identify the various ways in which theory may have influenced their shape and nature” (p. 95). Following our initial assessment of the primary research articles in our meta-study, we conducted a critical meta-theory analysis. Our critical analysis was guided by questions aiming to identify: 1) the philosophical perspectives and assumptions underlying the research design; 2) how theory was informed, used and developed 3) the underlying assumptions and quality of specific theories; 4) how the sociocultural, disciplinary and political context may have influenced selection of theoretical framework or interpretation of results; and 5) the historical evolution of theories (Clarke et al., 2015; Frost et al., 2016; Paterson et al., 2001). Meta-theory therefore raised awareness of the contexts of how dominant theories have been created, developed and institutionalised in the field of sport and trauma.

Meta-method encompassed a critical examination of research design, methodology and method. The purpose of meta-method is to “determine how the interpretation and implementation of qualitative research methods have influenced the research findings and the emergent theory in a particular field of knowledge” (Paterson et al., 2001, p.71). For Paterson et al. (2001), the specific approach drawn upon for methodological appraisal should be in accordance with the aim of the meta-study. To meet our purpose of understanding how methodology guided the knowledge production process, our methodological appraisal was guided by meta-study methodology (e.g, Clarke et al., 2015; Frost et al., 2016; Paterson et al., 2001) and more recent debates in judging the rigor and trustworthiness of qualitative research (e.g., Majid & Vanstone, 2018; Smith & McGannon, 2018). Here, we critically explored methodological aspects of the primary research studies including: the rationale for choice of methods of data collection and analysis; if the research question and role of the researcher(s) was in line with the underpinning assumptions of the method; and how the methodological characteristics influenced the research findings. We also examined how methodological orientations changed over time across the primary studies to provide a historical context of research design and findings.

Meta-data analysis included a critical examination and interpretation of the analysis and findings presented by the primary studies. This stage included the study of underlying assumptions of data analysis procedures, the comparison of data quality and utility, and the theoretical and methodological interpretation of findings (Frost et al., 2016; Paterson et al., 2001). In addition, strengths and limitations of the articles were considered including the contribution each study made to the body of knowledge in this field. However, we did not incorporate another distinct analytical approach (e.g., meta-ethnography or thematic synthesis) into our meta-data analysis as advocated by Paterson et al. (2001). In line with the purpose of our meta-study, and as illustrated by the works of Clarke et al. (2015) and Frost et

al. (2016), we approached meta-data analysis as a diagnostic tool. Furthermore, we did not employ a structured appraisal tool to evaluate the quality of primary research studies. Due to the vast number of qualitative appraisal tools available, and lack of consensus in the qualitative evidence literature regarding the appropriate approach to judge the quality of qualitative research (see Majid & Vanstone, 2018), we critically evaluated each study based upon the questions posted at each level of analysis (i.e., meta-theory, meta-method and meta-analysis). The final stage, *meta-synthesis*, brought the analysis together to offer new theoretical, methodological and analytical interpretations and identify implications for future research. As Paterson and colleagues (2001) state, meta-study “creates the possibilities of looking beyond, imagining something better, and contributing to a more complex and infinitely interesting scholarship” (p.111). In practice this involved a dynamic and iterative process of thinking, interpreting and reflecting upon the three prior processes to offer a new understanding of the sport for trauma literature (Paterson et al., 2001). The questions used to guide the critical examination of theory, method and findings are presented in Table 1.

Table 1	
<i>Analysis of Primary Research Studies</i>	
Analysis	Example questions used to guide analysis
Meta-theory	<p><i>How does theory inform the article, how was theory used and developed within article?</i></p> <p><i>What are the significant assumptions underlying specific theories?</i></p> <p><i>How has sociocultural, disciplinary and political contexts influenced selection of theoretical frameworks or interpretation of findings to support a particular theory?</i></p> <p><i>Are ontologies/epistemologies specified, how were ontological/epistemological concerns addressed?</i></p>
Meta-method	<p><i>Are the research questions and role of researcher(s) in line with underpinning assumptions of method?</i></p> <p><i>What was the rationale for the choice of methods of data collection and analysis?</i></p> <p><i>Do the data collection procedures fit with stated research methods and findings?</i></p> <p><i>How did methodological characteristics influence research findings?</i></p>
Meta-data analysis	<p><i>What were the key findings, are they adequately supported by data?</i></p> <p><i>What strengths and limitations does the article have?</i></p> <p><i>How were different theoretical and methodological perspectives used to interpret findings?</i></p> <p><i>How these approached have contributed to body of knowledge on sport and trauma?</i></p>

Research process

To understand the historical context of the research of sporting activities and trauma over time, we appraised articles in chronological order from the oldest to the newest. Each article was independently reviewed by each author before a subsequent discussion where we produced a combined summary of analysis. The aim of the independent review and combined summary of analysis was not to seek inter-rater reliability and produce ‘reliable’ interpretations (Smith & McGannon, 2018). Rather, this was an opportunity for both authors to discuss, debate and challenge our own assumptions, beliefs, experience and knowledge that led to our analysis of the theory, methods and findings of each article. In this instance, the William is a subject specialist on the role of sporting activities in the lives of individuals who have been impacted by childhood trauma. Subsequently, he conducted research that was included in this review (see Massey & Whitley, 2016; Whitley, Massey, Wilkison, 2016a). In contrast, the Toni’s specialism in relation to this study is qualitative research synthesis (see Williams & Shaw, 2016; Williams et al., 2017). Between us, we were equipped with a variety of theoretical, methodological and content knowledge to conduct this meta-study (Paterson et al., 2001). For example, the William could draw upon his subject knowledge to identify the implicit use of theory within the articles. Whereas the Toni’s examination of each article was undertaken at a *critical distance* from the research which led to some alternative interpretations of the analysis.

In terms of our paradigmatic positioning, we align with Paterson et al. (2001) in understanding primary qualitative research as a construction, and therefore secondary research as a construction of a construction. Accordingly, guided by Paterson et al. (2001), we acknowledged meta-study as an interpretive constructionist approach with the following assumptions. First, there is no single objective reality to be found regarding the phenomenon. Rather, trauma is a unique experience and there will be “multiple, coexisting, and even

sometime incongruous realities related to the phenomenon to be found instead” (Paterson et al., 2001, p.7). Second, the constructions of trauma and sporting activities in the primary studies will have been influenced by the social, cultural and ideological context in which they occurred. Third, as authors of this meta-study, our interpretations of primary researchers’ construction of findings will be influenced by our own academic and theoretical context. Therefore, the theoretical, methodological and analytical considerations for research and practice derived from this meta-study should not be regarded as the only possible conclusions that could be drawn from the included studies, but as those constructed by us at this given point in time and in accordance with our own interpretive skills (as highlighted above). As such, we have sought to demonstrate the rigor and trustworthiness of our meta-study through detailed appraisal of the primary research articles and documenting the decision-making process throughout the research process (Paterson et al., 2001). For example, we have described and explained our rationale for our approach to this meta-study as a dialogical tool (Frost et al., 2016), rather than seeking to create a grand theory regarding trauma experience. Furthermore, we have clearly outlined the sampling procedure, methods of data collection and interpretation, and drawn upon relevant literature to support our conclusions.

Results

In total, 16¹ studies met the inclusion criteria and were critically analysed using the meta-study methodology presented above. Ten studies examined the impacts of various interventions, which included boxing (Van Ingen, 2011; Van Ingen 2016); the use of sport within a disarmament, demobilisation, and reintegration camp for ex-combatants (Dyck, 2011); a sport and mental health intervention for a traumatised refugee from a war-torn country (Ley et al., 2018); yoga (Rhodes, 2015); a sports-based youth development program

¹ The Thorpe (2016) paper includes data from Thorpe 2015 & Thorpe & Ahmad, 2015. Therefore we have considered this as one body of work

for refugees (Whitley et al., 2016b); and prison-based sport and fitness programs for youth offenders (Andrews & Andrews, 2003; Meek & Lewis, 2014; Parker et al., 2014; Van Hout & Phelan, 2014). The remaining six articles explored the role of sporting activities in naturalistic settings. Seven studies were conducted with individuals who had experienced trauma (Ley et al., 2018; Massey & Whitley, 2016; Ratcliff et al., 2002; Rhodes, 2015; Van Ingen, 2011; Van Ingen, 2016; Whitley et al., 2016a); five studies included participants who had been displaced, had been exposed in warfare, or were in potentially traumatising events such as natural disasters or extreme community violence (Dyck, 2011; Sobotova et al., 2016; Spaaij, 2015; Thorpe, 2016; Whitley et al., 2016b); and four studies were specific to youth who had disruptions in caregiving as evidence by their placement in the criminal justice systems (Andrews & Andrews, 2003; Meek & Lewis, 2014; Parker et al., 2014; Van Hout & Phelan, 2014). Overall, differences in theoretical and methodological approaches emerged across (and to a smaller degree within) these groupings and are discussed in further detail below.

Meta-Theory

The purpose of this section was to critically explore the ontological, epistemological, and theoretical underpinnings to each study. Within this, we examined how historical, cultural, and disciplinary trends may have affected the research process, and how the underlying assumptions made by the researchers may have affected knowledge produced. As it relates to philosophical positioning, the majority of studies did not make explicit connections to how their philosophical underpinnings formed and shaped each study, however this information was often implicitly suggested from the theoretical and methodological positioning of the authors (see Table S2).

In examining studies that made more explicit connections between philosophical positioning and theoretical underpinnings, Rhodes (2015) grounded her study in

hermeneutical phenomenology, which has philosophical roots in interpretivism. Within her work, Rhodes discussed that experiences are tied to “corporeal, temporal, relational, and spatial dimensions...within larger historical, social, political, and cultural context” (p. 248). This positioning implies that trauma is not only an individual phenomenon, but rather, trauma must be considered within the complex, and ever-changing social systems, spaces, and relationships in which it takes place. While her theoretical positioning is more focused on individual processes (e.g., embodiment, interoception), Rhodes discussed the need for biopsychosocial models that take into account the individual and the environment during sporting activities for those who have experienced trauma.

Van Ingen also provided a high level of coherence between philosophical and theoretical positioning. In her 2011 study, she specified that the work was not grounded in “truth finding” but rather a critical view of the intersection of space, emotion, trauma, and understanding. She then connected this with a theoretical positioning of emotions as a social construction, along with using Lefebvre’s triadic notion of social space. Similarly, her 2016 work was rooted in “an ethical inquiry of not knowing”, in which she attempted to deconstruct “notions of expert and authority” (p. 474). This stance was combined by grounding the study within an anti-oppressive framework in which she explored the intersection of boxing, art, and trauma.

Andrews and Andrews (2003) grounded their work in a participatory framework, with discussions around interpretive and critical paradigms, as well as subjective epistemologies. In doing so, they relied on historical and cultural ideologies in sport, delinquency and sport provision theories, and research and theory that examines the relationship between exercise and mental health. Finally, Massey & Whitley (2016) and Whitley et al. (2016a) aligned their articles with social constructionism recognising a lack of universal truths as it relates to the human experience. Matching this position, the studies were theoretically grounded in

bioecological systems theory and resilience theory, which allowed for an examination of how social systems interact with a person over time. Taken together, the work of these four author groups sheds light on traumatic events, and the resulting symptomology, as more than an individual phenomenon, and highlights the need to focus on physical space, multiple levels of social systems, historical injustices, and systems of hegemony and privilege when considering sporting activities for survivors of trauma.

With a less explicit connection between philosophical and theoretical positioning of the research, and a more pronounced disciplinary focus, the work of others both explicitly (Ley et al., 2018) and implicitly (Dyck, 2011; Ratcliff et al., 2002; Spaaij, 2015; Sobotova et al., 2016; Thorpe, 2015; 2016; Thorpe & Ahmad, 2015) had influences of social constructionism and interpretivism. For example, both Dyck (2011) and Sobotova et al. (2016) emphasised the importance of understanding locally-based practices and knowledge. For Dyck, this resulted in utilising Galtung's distinction between structural and direct violence, and examining disarmament, demobilisation, and reintegration theories from a disciplinary perspective (i.e., political science). Sobotova and colleagues' work was grounded in disciplinary research (i.e., sport for development) as opposed to theory, but also contained influences from social, geographical, and historical events that shaped the research context.

Similarly, Ratcliff et al. (2002) grounded their work in disciplinary (i.e., occupational therapy) views of occupation for trauma survivors, while Thorpe's (2015; 2016; Thorpe & Ahmad, 2015) work examining youth responses to war and disaster was influenced by critical sociology, intersections of time and space, theories of youth agency, and theories of resilience. Spaaij (2015) did not explicitly link his work to a disciplinary or philosophical tradition, but utilised overarching theories of belonging to better understand the sport experience of those in refugee and/or resettlement communities. Finally, Ley and colleagues

explicitly stated a social constructionist approach, but grounded their research in PTSD diagnoses and treatment approaches as opposed to underlying theory.

A final group of articles did not make connections between philosophy and theory, and often were devoid of theoretical influence. Notably, the studies conducted by Parker et al. (2014), Meek and Lewis (2014), and Van Hout & Phelan (2014) did not have a guiding theory or knowledge philosophy, but rather a belief that sporting activities can be used to engage ex-criminal offenders and has intrinsic physical and social benefits. Similarly, Whitley et al. (2016b) guided their work with a professional practice framework (i.e., Teaching Personal and Social Responsibility) with an underlying assumption that sporting activities can promote positive youth development in a population of refugees. Taken together, these studies represent a less critical approach in which sporting activities are assumed to provide benefits, without critically addressing various other factors at play.

Meta-Methods

The purpose of this section was to critically assess the methodology of the included studies in an effort to better understand how methodological choices influenced research findings and emergent theory within sporting activities and trauma research. Within this, we examined if the research questions were in line with the underlying philosophy that guided each study; the role of the researcher(s) and their relationships to participants; sampling procedures; the rationale for and use of different data collection and analysis procedures; and how these procedures influence the research findings (see Table S2 for a summary of methodological details).

In considering the methodological procedures of the included studies, seven articles included sufficient detail to appraise methodological coherence (Ley et al., 2018; Massey & Whitley, 2016; Rhodes, 2015; Sobotova et al., 2016; Van Ingen, 2011; Van Ingen, 2016; Whitley et al., 2016a). Notably, within these studies, the research questions and procedures

were aligned with philosophical underpinnings of the work; the role of the researcher was discussed; sampling procedures were explained; the authors provided sufficient details and rationale to judge the data collection and analysis procedures; these procedures were appropriate for the chosen methodology; and there were meaningful connections between the methodology employed and the presentation of the findings. Interestingly, this group of studies also utilised a broad range of methodological designs including post-qualitative research (Van Ingen, 2016), case-studies (Ley et al., 2018; Whitley et al., 2016a); narrative inquiry (Massey & Whitley, 2016), phenomenology (Rhodes, 2015) and action research (Sobotova et al., 2016; Van Ingen, 2011); as well as a more diverse array of data collection and analysis techniques (e.g., arts-based research; social mapping; use of multiple vantage points).

Aside from these seven studies, the article by Dyck (2011) and the body of work from Thorpe (2015; 2016; Thorpe & Ahmad, 2015) appeared to align their methodologies with their overarching purpose, philosophy, and findings, however partially limited details presented in the methods occluded a full analysis of methodological coherence. One additionally study (Andrews & Andrews, 2003) mostly aligned their methodology to their proposed development of theory. However the authors discussed grounded theory analysis to develop themes, as opposed to a full grounded theory study aimed at theory development. Four studies did not provide enough methodological detail to fully appraise the study to address the purpose of meta-method analysis (Meek & Lewis, 2014; Parker et al., 2014; Spaaij, 2015; Whitley et al., 2016b). Commonly, these articles either provided no rationale for their choice of data collection and analysis, no detail of how data analysis was undertaken, or a lack of reflexivity concerning the role of the researcher. In the remaining two studies, there were concerns regarding the conceptualisation of data analysis. Notably, the analysis undertaken by Ratcliff et al. (2002) was perceived to be a content analysis in the

context of the literature rather than a story telling form of analysis as outlined in the purpose. Furthermore, Van Hout & Phelan (2014) positioned their study as a grounded theory, yet there was no new theory proposed or greater understanding of how this study illuminated new relationships, connections or core constructs.

Meta-Data Analysis

The purpose of this section was to critically analyse the findings of each research study and compare and contrast common themes that emerged. In line with our diagnostic approach to the current study, a secondary analytical approach was not used. Rather, we examined trends in the data based on the quality of the findings presented. Specifically, and related to our overall purpose to use meta-study as a diagnostic tool, the meta-data-analysis section focused on what the key findings were, if the key findings were supported by the data, how theoretical or methodological perspectives were used to interpret the findings, and the limitations of the research. In appraising the findings from each study, there were four consistent findings that were observed throughout the 16 included studies: sense of belonging; psychological escape; embodied experience; and environmental consideration (see Table S2). Yet, the diversity of studies as it relates to type of traumatic event, age, sporting activity, methodological processes, and how the findings were contextualized make comparisons or syntheses impossible. In the following paragraphs, study findings are discussed within the context in which data were collected and analysed.

Overall, findings were supported by the data in the appraised studies, however, studies that did not examine the interpretation of the findings in the context of theory and methodology were limited in their generalizability and transferability (see Smith, 2018 for a discussion on qualitative generalizability). For example, four articles examined the role of sport and/or fitness in the context of youth who have been placed in a detention facility. This population of study was included in the review as detachment from primary caregivers can be

a traumatic event (Denton et al., 2017), with the studies included examining the experiences of adolescents. Three studies (Meek & Lewis, 2014; Parker et al., 2014; Van Hout & Phelan, 2014) discussed the positive role sporting activities played in the rehabilitation process, particularly as it related to developing a sense of belonging, or a positive social network through the sport experience; as well as having a temporary escape from the struggles of being in detention. These findings may be particularly important to youth experiencing separation from caregivers, as the role of developmental assets and social networks has been shown to be a key function of resiliency in youth populations (Zimmerman et al., 2013). Yet, these three studies were not grounded within a specific theoretical paradigm, positioned the article within a sport for good narrative, did not clarify underlying epistemological assumptions, and only involved male offenders.

In contrast, Andrews and Andrews (2003) grounded their study in historical and cultural functions of sport, delinquency and sport provision theories, and interpretative, critical, and subjective epistemologies. Moreover, the participatory nature of the Andrews and Andrews (2003) study allowed for a more complex relationship between the research and the researched. In considering the findings of the article, the authors question the nature of sport within a rehabilitative context due to possible social comparison anxieties, low levels of baseline self-esteem for the participants, and the development of strength being used as a gender and/or ability based social hierarchy. Thus, the collective findings of these articles show that while sporting activities can be an avenue to developmental assets through positive social networks, the selective use of sporting activities, and the rules used to govern these activities should be considered within this population, as activities may have a detrimental effect on participants when the potential for gender and ability hierarchies are not considered. Moreover, while sporting activities may be deemed as a psychological escape for some, for others, sport might be an experience that triggers past traumatic events. Thus, future research

should be sensitive to the culture, norms, and behaviours that govern certain environments (e.g., youth detention), as well as the characteristics of participants (e.g., low competence) in deciding whether sporting activities will serve as a positive or negative development influence.

In considering the role of sporting activities in other displaced populations, Whitley et al. (2016b), Spaaij (2015), Dyck (2011), and Ley et al. (2018) all examined sport programs within refugee, displaced, or former soldier populations. In examining how the research process led to difference in knowledge production, Whitley and colleagues (2016b) based their work on a professional practice model (i.e., teaching personal and social responsibility) as opposed to utilizing a more robust theory or set of epistemological assumptions. According to Whitley and colleagues, 100% of youth reported feeling a sense of belonging throughout the sport program, however a nuanced understanding of belonging was not explored. In contrast, Spaaij (2015) conducted an ethnography aimed at exploring social processes and interactions that take place through community sport and grounded the study in theories of belonging. The findings in this study suggest that sport can be a source of belonging, but that sport, and thus belonging in the context of sport, is gendered in nature. This was particularly relevant in cultures where the ideals of sport may contradict traditional sex roles or identities (e.g., Muslim and Somali cultures). Interestingly, this finding also seemed applicable in the study conducted by Dyck (2011), in which sport was used as an intervention in the context of a disarmament, demobilisation, and reintegration camp for former child soldiers. Notably, while the findings documented that the sport program helped to reduce violence in the camp, develop social networks, and provide a psychological escape from trauma, Dyck noted the gendered nature of this process and that by reinforcing hegemonic masculine ideals sport may also perpetuate gender-based violence. Thus, while sport in the context of a controlled programme may provide a sense of belonging to a specific club, sport within a community,

and as integrated into the fabric of the community, might present barriers to belonging for certain groups whom are already at risk of exclusion (e.g., female refugees), as well as violence against non-affiliated group members.

In contrast to the aforementioned studies, Ley and colleagues positioned their work within an understanding of post-traumatic stress disorder (PTSD) diagnosis and treatment. Using an interpretivist epistemology, the authors document the role of a sport program, as one component of rehabilitation to help regulate affective states, promote a sense of belonging to a group, provide a distraction or respite from flashbacks, and help to integrate bodily sensations through sport and exercise. While the program was framed in a positive light by the participant, it is noteworthy that challenges were documented around forming bonds and friendships, making it to the sport and exercise sessions, and dealing with PTSD symptomology. Thus, it is imperative that future researchers and practitioners consider the type and degree of the trauma that has occurred, along with the goals of the program and the capacity of those working alongside youth.

Aside from the type and degree of the trauma that has occurred, another consideration is when the trauma occurred and the developmental goals of the participants. That is, working with adults who experienced trauma in their developmental years, might provide for a different process and understanding of knowledge than working with children and youth who have been displaced, abused, or subject to extreme forms of violence. Van Ingen (2011) examined the role of anger in female and trans survivors of gender-based violence within the context of a (non-combative) boxing program. Specifically, Van Ingen argued in defence of anger as a productive emotion and response to the social-cultural-and personal consequences of gender-based violence. Inherently, she discussed how a boxing program can help facilitate a productive form of embodied anger for those overcoming past traumatic events. In contrast, Rhodes (2015) conducted a yoga intervention for women with PTSD from past childhood

traumas. Framed within theories of post-traumatic growth, bio-psycho-social systems, and interoceptive awareness, Rhodes outlined how yoga helped participants claim peaceful embodiment. Interestingly, while taking different approaches (i.e., embodied anger through boxing, peaceful embodiment through yoga), personal autonomy and control related to intervention participation seemed to be essential for participants in both studies. The notion of autonomy and control was also apparent in another study conducted by Van Ingen (2016), in which the author suspended theoretical and interpretive lenses to allow the artwork of female and trans survivors of gender-based violence, who were participating in a boxing program, to display how sport and art could be embodied forms of action during the healing process.

Finally, while not based on interventions, studies that examined the intersection of sporting activities in a natural setting, developmental trauma (e.g., abuse, neglect), and/or traumatic events (e.g., war, natural disasters) help to shed light on critical processes that must be considered when examining the role of sporting activities in populations affected by trauma. For example, Sobotova and colleagues (2016) demonstrated the spaces dedicated to sporting activities are perceived with a higher sense of security and belonging for youth affected by ongoing war and conflict. In a similar vein, Thorpe (2015; 2016; Thorpe & Ahmad, 2015) demonstrates how action sports can help facilitate protective and promotive factors (i.e., agency, normalcy, positive social networks) in the face of war and disaster. In a study of two female survivors of sexual abuse, Ratcliff et al. (2002) used an occupational science lens to show how sporting activities can be an occupation that promotes mind-body integrations and helps survivors make meaning. Finally, the work conducted by Whitley and Massey (Whitley et al., 2016a; Massey & Whitley, 2016) examined the role of sporting activities in the lives of individuals who experienced trauma in their youth within the context of both bioecological systems theory and resiliency theory. In doing so, they demonstrated

how sport can provide a physical place to belong, with people to belong to, which was deemed as essential for individuals who had experienced trauma in their youth. Yet concomitantly, their data showed that sport could be a place in which traumatic events were re-triggered and development was abated. Again, this points to the importance of understanding context (e.g., types of opportunities available, climate of sporting environments), and taking a critical approach to both if, and when, sport might be helpful or harmful to those who have experienced trauma.

In examining the limitations of each study, a common theme was observed around the non-central role of sporting activities in the healing process for trauma survivors. For example, Dyck (2011) highlighted how sport can cause harm by reinforcing hierarchies and gender inequality, and thus its use should be carefully considered within context. Others pointed out inherent selection biases (Rhodes, 2015), noted how sporting activities were just one piece of a larger rehabilitation plan (Ley et al., 2018), suggested that the use of sporting activities assumes able-bodism and at least some form of social power (Thorpe, 2015; 2016; Thorpe & Ahmad, 2015), and that participants who have experienced trauma often have narratives that remain unresolved (Van Ingen, 2016). Thus, collectively the limitations acknowledged by these studies reinforce that sporting activities are not a panacea, particularly for those who have experienced trauma. Indeed, many studies report both positive and negative effects that may result from engagement in sporting activities (e.g., Dyck, 2011; Massey & Whitley, 2016; Spaaij, 2015; Thorpe, 2015; 2016; Thorpe & Ahmad, 2015), and thus future scholars and practitioners are encouraged to strongly consider how the population, cultural context, social norms and hierarchies might interact with the social interaction and hegemony traditionally associated with sport participation.

Meta-Synthesis

By drawing upon the three methods of analysis, our meta-synthesis revealed several important theoretical, methodological and analytical considerations for the study of sporting activities and trauma. First, studies which made explicit connections between philosophical, theoretical and methodological assumptions resulted in a more robust and critical contribution to the body of literature on sporting activities and trauma. In contrast, the studies devoid of theoretical and philosophical underpinnings often employed simplistic or poorly communicated methods and forms of analysis. These studies lacked a richness and depth of findings and ultimately contributed less to the overall body of literature. This is not surprising considering the important role of theory in qualitative research. Theory can be used to inform research, and researchers can apply and test theory as well as build a new theory or develop an existing theory (Cassidy, 2016; Tamminen & Holt, 2010). Given that trauma can be experienced as an individual, variable, subjective, interpersonal, intrapersonal, social and structural phenomena, studies grounded in theory were able to account for this level of nuance and expose multiple levels of influence. While some studies drew upon theory to explain their findings (e.g., Spaaij, 2015; Whitley et al., 2016a), others developed theory throughout their study. For example, theory was developed to understand how to use sport as a complimentary intervention (Dyck, 2011), to explain the process of healing (Rhodes, 2015) and to examine sport as a specific context for risk and resilience (Massey & Whitley, 2016).

Second, there was much diversity in terms of methodological approaches and qualitative methods which was important in revealing the multifaceted nature of experiences in sporting activities following trauma. However, many studies did not provide sufficient methodological detail to understand the research process and how knowledge was created. Adequate descriptions of the techniques used to gather, organize and translate data are vital to demonstrate research quality (Clarke et al., 2015). Yet information concerning the rationale for data collection methods and the construction of findings through data analysis was absent.

Furthermore, reflexivity concerning the role of researcher was inconsistent across studies. The personal subjectivity and experience of the researcher will influence the research process and impact interactions and relationships with participants (Clarke et al., 2015; Thorpe & Olive, 2016). In many cases, one or more of the authors developed relationships with participants and/or were involved with the sport or part of the intervention. For instance, Ratcliff et al. (2002) acknowledged experiences of child sexual abuse which provided a bridge between the author and participants to explore experiences with sensitivity and understanding. Moreover, Van Ingen (2016) was a co-founder of the boxing program for female and trans survivors of violence but assumed no interpretive authority over the participants lives. Yet other studies did not include this level of reflexivity and many questions concerning the relationship between the researched and researcher(s) were left unanswered.

Third, despite a great deal of methodological diversity, there was no clear identification of how methodological orientations had changed over time to provide a historical context of research design and findings. The lack of identifiable historical context may, in part, be explained by the time frame over which these studies were published. With two exceptions (i.e. Andrews & Andrews, 2003; Ratcliff et al., 2002), most studies were published within the last seven years. Furthermore, the studies examining sporting activities and trauma were conducted across disciplinary boundaries. As certain disciplines have been associated with the development of certain methods and methodologies, this may explain why there is no discernible pattern in how and why certain approaches have been used. That said, explicitly and implicitly articles had undertones of narrative and storytelling and were primarily based on interview methods of data collection.

Lastly, the studies appraised in the current review suggest that a sense of (or lack of) belonging and psychological escape might be key outcomes associated with sporting

activities for trauma survivors. Furthermore, studies in the current review suggest that the embodied nature of sporting activities might be used to reintegrate the disassociation often inherent in response to trauma and to reclaim one's body in the face of trauma. Notably, trauma symptoms are often experienced at sub-cognitive levels of processing (van der Kolb, 1996), and can lead to dysregulated experiences (Sevecke, Franke, Kosson, & Krischer, 2016). However, embodied practices such as sporting activities might help to improve emotional and regulatory functions, as well as enable a sense of personal control that can lead to hope for the future and post-traumatic growth (Kaye-Tzadok & Davidson-Arad, 2016). That said, as noted throughout the articles in this review, the use of sporting activities must be used with caution, and with appreciation for both the culture and physical space in which any interventions take place, as failing to do so could ultimately lead to additional harm.

Discussion

This meta-study contributes to original knowledge through the critical examination of the qualitative research evidence on the use of sporting activities for survivors of childhood trauma. Drawing upon a rigorous assessment of underpinning theory, methodological procedures and construction of findings, we have revealed several key issues for the future evolution of research in this area. From a theoretical perspective, our analyses have highlighted the fundamental role of theory in understanding the complexity of trauma. Importantly, we have revealed that studies that not only drew upon theory but made some connection between philosophical positioning and theoretical underpinnings, resulted in more novel and substantial contributions to the body of literature. We advise that researchers consider how theories can provide direction for their research design and make explicit and coherent links between theory, methods and results to further enhance the scholarship in this field (Clarke et al., 2015; Kelly, 2010; Paterson et al., 2001).

Furthermore, echoing the findings of other qualitative meta-syntheses (e.g., Clarke et al., 2015; Williams et al., 2017), we identified that many studies did not report sufficient detail of methodological procedures and processes. In line with these authors, we would urge researchers to describe and justify their chosen methodology and methods of data collection and analysis to demonstrate the methodological integrity of their research (See Levitt et al., 2017). Indeed, meta-study appraisal does rely upon the primary researchers' ability to communicate their decisions making process regarding study design and research findings (Paterson et al., 2001). That said, we are mindful a lack of methodological and procedural detail in a manuscript does not necessarily indicate their absence from the research process (Majid & Vanstone, 2018).

To be clear, we are not endorsing a universal or checklist approach whereby pre-determined criteria are used to judge the quality of qualitative research in set ways. Rather, from a relativist approach, we recommend that researchers consider drawing upon transparency as part of an ongoing list of suitable criteria that may be used to judge their work (see Smith & McGannon, 2018). As Tuval-Mashiach (2017) explained, the concept of transparency is based upon the researcher achieving two important goals: "crafting his or her own methodological path during the research process, and at the same time being reflexively aware of the decisions he or she takes, therefore enabling him/her to justify and communicate the rationale behind them" (p. 128). Thus, demonstrating transparency allows readers to understand how knowledge was constructed and make their own judgement of the quality of the scholarship.

Lastly, from an analytical viewpoint, the results of this meta-study highlight the various disciplinary lenses through which trauma (and sporting activities) can be viewed, while also emphasizing the need to consider time, space and local culture in better understanding how sporting activities might be experienced by trauma survivors. Importantly, the results

show that without considering the multitude of factors noted above, sporting activities can cause inadvertent harm, such as amplifying trauma symptomology (Massey & Whitley, 2016), promoting gender-based violence (Dyck, 2011), and lowering self-esteem (Andrews & Andrews, 2003). However, results of this analysis also suggest that when sporting activities are carefully planned for a targeted population, it can promote a sense of belonging, well-being, and post-traumatic growth. Thus, practitioners are encouraged to carefully consider the context and weight the benefits against the risks when considering the use of sporting activities in traumatized populations. We would also encourage researchers to be critical of future scholarship in considering how we move forward in understanding the role of the body in trauma healing, and how ongoing research might expand and grow in a way that allows for meaningful contributions to practice. Given the explicit and implicit undertones of narrative and storytelling in our analyses, future research could further explore the use of narrative inquiry. For example, researchers may wish to examine if the research process can aid in the healing process through storytelling and making sense of one's story. In addition, if body practices are narratives, how the body might tell a story and how researchers may help facilitate this process is a topic worthy of consideration.

On reflection of this meta-study, there are a few methodological implications which may be important for future research and practice. First, there was great variability across the included studies in terms of type of trauma experienced (e.g., endured trauma compared to traumatizing situations), context of sporting activities (e.g., naturalistic or intervention-based studies that included sporting practices, martial arts, dance and yoga) and academic discipline. However, the heterogeneity of this body of literature is part of the rationale for conducting a meta-study over other forms of meta-synthesis that prioritize synthesizing findings rather than scrutinizing the research process (Paterson et al., 2001; Williams & Shaw, 2016). Furthermore, through our detailed description and rigorous analysis of theory,

methods and findings we hope that readers can infer their own interpretations of the application – or generalizability (see Smith, 2018) – of our implications for future research across different contexts and disciplinary boundaries.

Second, there were also differences in the age of participants in relation to the trauma experienced and the time frame with which they took part in the research. For example, some studies were directly studying youth whereas others were studying trauma experienced during the participants' youth. In considering future avenues for scholarship, there is a need to understand how sporting activities might affect acute as opposed to chronic trauma symptomology, and the corresponding ethical questions regarding timing of both programming and data collection. Lastly, although some studies did include other personnel in addition to trauma survivors (e.g., Dyck et al., 2011), studies were excluded if the study participants were primarily coaches or others delivering the intervention. Therefore, future research may wish to gather multiple perspectives from different stakeholders to further understand the role of sporting activities for individuals experiencing trauma during their youth.

Conclusion

Our meta-study has made an original and significant contribution to the literature on sporting activities and trauma by critically appraising the underpinning theory, methodological approaches, and construction of findings of the included studies, and providing important directions for future research. We have highlighted the potential of philosophical, theoretical, methodological and analytical coherence in producing research that advances the scholarship of this field. We have also demonstrated the value of multidisciplinary lenses and methodological diversity in considering time, space and local culture to better understand how sport and movement activities might be experienced by trauma survivors. Ultimately, the results of this manuscript encourage the continued

advancement of rigorous and ethical research that can better inform the balance of risks to benefits in considering the use of sporting activities for trauma survivors.

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None

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Supplemental File

Table S1	
<i>Example Search Terms</i>	
Overarching Term	Range of Search Terms
Youth	<i>Youth, child, adolescent, adoles*, boy, girl, teen, minor, minors, teenager, teenage, school-aged, pre-school, children, pediatric</i>
Trauma	<i>Trauma, Psychological Trauma, Stress, PTSD, acute trauma, complex trauma, developmental trauma, adjustment disorders, battered child syndrome, combat disorders stress disorders, post-traumatic, post-trauma,</i>
Sport	<i>Sport, sport for dev* sport dev*, sport for dev*, sport for change, sport for social change, sport for development and peace, sport for youth dev* sport based youth dev*, athletics, athlet*, motor activity, physical activity, physical education and training, physical education, motor activity</i>
Mental Health and Wellbeing	<i>Mental health, wellbeing, well-being, health, psychological health, positive adjustment, psychological well-being, holistic health, hygiene, mental hygiene, life skill*, life skill development, life skill transfer, self-efficacy, self-esteem, confidence, confident, social skills, behavioural health, behavioural health</i>
Qualitative Research	<i>Qualitative, 'focus group*', interview*, ethnograph*, 'participant observation*', interpret*, 'life world*', 'lived experience*', 'grounded theory', 'content analysis', 'discourse analysis', 'thematic analysis', 'constant comparative', narrative, hermeneutic*, phenomenol*</i>

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Table S2							
<i>Summary of Included Studies</i>							
Paper	Aim	Context of Sport/ Movement	Trauma History	Theoretical Orientation	Participants	Methodology	Summary of Results
Andrews & Andrews (2003)	Examine how youth and staff respond to sport and physical education within a secure unit	Sport and physical activity within a juvenile detention facility	Participants were incarcerated at the time of intervention programming	Delinquency and sport provision theories	20 youth who were residents in a secure facility	<i>Design:</i> Qualitative <i>Data collection:</i> Participant observation, field notes, interviews <i>Analysis:</i> Grounded theory	Even with environmental modifications, sport fostered social comparison anxieties and could negatively impact self-esteem. Autonomy and ownership in the program gave youth a sense of responsibility. There is a need to consider how gender may impact the effective use of sport in the social rehabilitation process.
Dyck (2011)	Examine how ex-youth combatants, camp administrators and caregivers perceived impact and significant of sporting activities in disarmament, demobilisation and reintegration (DDR) camps	Sierra Leone DDR programmes	Participants were former child soldiers and “wives.” Data suggests participants had recently exited their soldier status	Galtung’s distinction of structural and direct violence	13 former child and youth combatants, 4 adult camp administrators and care takers	<i>Design:</i> Case study methodology <i>Data collection:</i> Semi-structured interviews <i>Analysis:</i> Unclear	Four main themes included sport as beneficial for reducing violence, integrating youth within the community, developing social networks through sport, and sport as a psychological escape. Author notes that sport also had the potential to perpetuate gender-based violence.
Ley et al (2018)	To describe and explain therapeutic processes and effects taking place in a sport and exercise program with war and torture survivors	European sport-based therapy program offered to refugees flying war	Participant was diagnosed with post-traumatic stress disorder (PTSD) and currently in treatment	Embodiment; Neurobiology of PTSD	One refugee fleeing from war and torture	<i>Design:</i> Case study <i>Data collection:</i> Interviews and observations <i>Analysis:</i> Inductive analysis	Sport was shown to have a motivational and restoration effect, a distraction effect, and an exposure effect (i.e., coping with bodily sensations).

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Massey & Whitley (2016)	To examine the role of sport in the lives of former athletes who experienced multiple traumas and/or adverse experiences in their childhood	Youth sport from disadvantaged community and multiple adverse childhood experiences	Participants were adults at the time of the study who had identified previous adverse experiences in childhood	Critical theory; Resilience theory; Systems theory	10 former athletes	<i>Design:</i> Narrative <i>Data collection:</i> Interview <i>Analysis:</i> Content and Structural analysis	Positive themes included sport as a distraction and escape during the trauma of childhood, and that sport was a place of purpose and structure. Negative themes included sport as a source of increased symptomology through being a place of celebrated deviance. Neutral themes highlighted how sport could not overcome the difficulties faced in childhood.
Meek & Lewis (2014)	Explore experiences and impact of prison-based football and rugby academies on participants and prison staff	Young offender institution aiming to use sport as a way of integrating young men in identifying and meeting their resettlement needs in transition from custody to community	Participants were incarcerated at the time of intervention programming.	Not specified	38 participants interviewed following release to community, 11 key prison staff also interviewed	<i>Design:</i> Qualitative <i>Data collection:</i> Interviews and focus groups (prior to, during and following academies) <i>Analysis:</i> Inductive/deductive thematic analysis	Sport helped to create a more positive environment in the prison and to break down barriers between prisoners and guards. Sport program allowed youth to see activity options upon release from prison and sport provided a direct avenue to employment for some.
Parker et al (2014)	Examine young people's motivations for and experiences of participating in a multimodal sports-based initiative	Sports-based academies over 12 weeks including theoretical and practice sessions with support	Participants were incarcerated at the time of intervention programming	Not specified	12 young men (aged 15-17 years old)	<i>Design:</i> Qualitative <i>Data collection:</i> Participant observation, semi-structured interviews, documentary analysis <i>Analysis:</i> Not explicitly stated	Findings suggested that sport was a distraction to those incarcerated, served as a positive alternative and a source of motivation, helped with behavioural disciplines and helped youth build positive social networks. Sport also promoted a sense of possibility and opportunity.
Ratcliff et al (2002)	Deepen understanding of the role of engaging in physical	Physical occupation	Participants were adults who had been victims of childhood sexual	Occupational science	Two women who were survivors of childhood sexual abuse and	<i>Design:</i> Narrative (integrated with biology) <i>Data collection:</i> Repeat interviews	Participants noted a disconnection from their physical selves as a result of trauma. It was noted that participation in sporting activities helped them to reconnect with their

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	occupation may have in women's experience of body and self		abuse during childhood.		engaging in physical occupation	<i>Analysis:</i> Two-fold narrative analysis	bodies and integrate their trauma experience into their lives. An environment of personal safety and value was needed for engagement.
Rhodes (2015)	Experiences of yoga and its role within processes of health for adult women with complex trauma histories	Yoga	77% of sample reported childhood physical abuse; 87% reported emotional neglect by a caregiver; 51% reported separation from a caregiver; 74% reported being sexually assaulted at some point in their life.	Post-traumatic growth; Embodiment; Biopsychosocial theories	39 women meeting criteria for PTSD and all reported childhood maltreatment	<i>Design:</i> Hermeneutic phenomenology <i>Data collection:</i> Semi-structured phenomenological interview <i>Analysis:</i> Hermeneutic phenomenological analysis	Data suggested that yoga was a multidimensional process that allowed participants to connect with and have ownership over their own bodies, thoughts, and emotions. Data supported yoga as a way to facilitate post-traumatic growth. Facilitators included a gentle approach, going at your own pace, and regular practice. Barriers included cost, motivation, and emotional safety.
Sobotova (2016)	Explore role of sport in the process of social inclusion and peacebuilding in post-conflict Columbia	Settlement Cazucá, Soacha, Colombia	Participants were living in a settlement due to an internal conflict. Reports indicate high levels of violence and conflict in the settlement	Grounded with the field of sport for development and peace	32 young peer leaders and their coaches between the ages of 15 and 25	<i>Design:</i> Participatory mapping <i>Data collection:</i> Mapping exercise <i>Analysis:</i> Maps analysed by general framework of i) security (ii) freedom of speech (iii) feeling of belonging to a place and (iv) equal access for women and men.	Participants noted that the spaces often used for sport had higher levels of security, freedom of speech, belonging, and equality.
Spaaij (2015)	Examine community sport as a site where refugee youth negotiate belonging	Community football clubs in Melbourne Australia	Participants were refugees in Australia. Time since displacement was not noted.	Theory of belonging	39 Somali Australian players and volunteers, and 12 Somali Australian community members and	<i>Design:</i> Ethnography <i>Data collection:</i> Participant observation and interviews <i>Analysis:</i> Not explicitly stated	Sport had the ability to transcend clans/cultural groups and can be helpful in rebuilding social support networks and community. Sport is a gendered activity and can further marginalize girls and women in the refugee community.

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					multicultural workers		
Thorpe (2015; 2016; Thorpe & Ahmad, 2015)	Examine youth agency, coping, resilience, and sporting creativity within local contexts of conflict and post-disaster, and signal important considerations for Sport for Development and Peace organisations working in such locations.	Post-disaster zones of Christchurch and New Orleans and conflict zone of Palestine	Participants were residents of cities that were affected by earthquakes, conflict, or hurricanes	Critical theory; Youth agency; Resilience	37 interviews with action sport participants in Palestine, Christchurch earthquake survivors and Hurricane Katrina survivors	<i>Design:</i> Interdisciplinary approach, on-going case studies <i>Data collection:</i> Interviews, media analysis and digital methods <i>Analysis:</i> Thematic analysis	Results focused on the importance of youth agency in making meaning of their lives through sporting activities during conflict and disasters. Sporting activities provided a psychological escape, a source of resilience, and a source of pleasure and enjoyment.
Van Hout & Phelan (2014)	Explore leaning and associated experiences of young male offenders' participation in fitness training and organized sports during community reintegration	Fitness training and sports programmes offered as part of community-based project aiming to address needs to young adults who are, or have been criminally active and to positively challenge offending attitudes and behaviours	Participants were former offenders who were no longer incarcerated.	Not specified	9 adult males (aged 18-26 years old) engaged in two community reintegration projects	<i>Design:</i> Grounded theory <i>Data collection:</i> Interviews, field memos and researcher observations <i>Analysis:</i> Grounded theory	Fitness program promoted a sense of belonging, enjoyment, and sense of physical health. Fitness program also helped pass the time. Sport and fitness acted as a drug/addiction leaving youth vulnerable to relapse when participation was limited. A sport ethos was developed in which some participants applied lessons of discipline and confidence to other areas of life.
Van Ingen (2011)	Theoretical and empirical examination of how anger is experienced, defined, felt and	A recreational boxing programme called Shape Your Life (SYL)	Participants were survivors of gender-based violence; timing of trauma in relation	Social space, geography, and emotion	78 women and transgendered participants (16-58 years old) from diverse social locations	<i>Design:</i> Action research project <i>Data collection:</i> Observation, focus groups, interviews	Results focused on the multiple ways anger can shape experience, inform meaning making, and incite social change. Themes included fighting the trope of anger, a symphony of anger, the use of

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	how it functions as means of insight and power		to the study was not indicated.		who identified as survivors of violence	<i>Analysis:</i> Thematic analysis	anger, anger unleashed, and training anger.
Van Ingen (2016)	Explore the ways in which participants illustrate the significant role that boxing and art can play in making difficult pasts comprehensible	SYL recreational boxing programme for female and trans survivors of violence in Toronto, Canada.	Participants were survivors of gender-based violence; timing of trauma in relation to the study was not indicated.	Anti-oppression framework	10 participants and 2 coaches in the Shape Your Life boxing program for women and trans survivors of gender-based violence	<i>Design:</i> Methodology of getting lost <i>Data collection:</i> Art and interview <i>Analysis:</i> Post-qualitative	Through the expression of art and boxing, results showed the complex nature of trauma, and how sport can, if only in part, help trauma survivors to make sense of their lives. Results highlight the tension in participants lives as they navigate the past and move towards a new understanding rooted in bodily practices.
Whitley, Coble & Jewell (2016b)	Assess participants' perceptions and experiences in a sport and recreational programme	The Refugee Sport Club (RSC) was a sport-based youth development programme that was grounded in the structure, values, and themes of the Teaching Personal and Social Responsibility Model	Participants were refugees in the United States. On average, time since displacement was 2-3 years.	Conceptual models of TPSR and Acculturation	16 refugee youth	<i>Design:</i> Program evaluation <i>Data collection:</i> Interviews <i>Analysis:</i> Hierarchical content analysis	Results showed that having fun, learning new sports, being members of a team, developing relationship with adults, learning about respect, learning about leadership, and learning about teamwork were key parts of the sport program.
Whitley, Massey & Leonetti (2016a)	To explore the experiences of growing up with multiple adverse experiences and the role of sport throughout development	Youth elite sport from disadvantaged community and multiple adverse childhood experiences	Athlete was an adult at the time of the study who had identified previous adverse experiences in childhood	Systems theory	One elite athlete participant	<i>Design:</i> Narrative case study <i>Data collection:</i> Interviews with participant and significant others <i>Analysis:</i> Narrative analysis	Key findings included understanding the role of the cultural context, cultural values, social norms, and important others in considering how sport shapes development. A temporal analysis showed how sport played a role in the athlete's life at multiple developmental transitions.